Showering Habits: Time, Steps, and Products Used After Brain Injury

Timothy A. Reistetter, Pei-Fen J. Chang, Beatriz C. Abreu

OBJECTIVE. This pilot study describes the showering habits of people with brain injury (BI) compared with those of people without BI (WBI).

METHOD. The showering habits of 10 people with BI and 10 people WBI were measured and compared. A videotaped session recorded and documented the shower routine.

RESULTS. The BI group spent longer time showering, used more steps, and used fewer products than the WBI group. A moderately significant relationship was found between time and age ($r = .46$, $p = .041$). Similarly, we found significant correlations between number of steps and number of products used ($r = .64$, $p = .002$) and between the number of products used and education ($r = .47$, $p = .044$).

CONCLUSION. Results suggest that people with BI have showering habits that differ from those WBI. Correlations, regardless of group, showed that older people showered longer, and people with more education used more showering products.


Showering is an important, complex, private habit shaped by culture, economic forces, and technological innovation. Research has demonstrated the importance of habit in supporting health and well-being (Clark, Sanders, Carlson, Blanche, & Jackson, 2007). Decline in showering or bathing is an important predictor of disability in older people and people with brain injury (BI; Gill, Allore, & Han, 2006; Liao, McGee, Cao, & Cooper, 2001).

The first forms of shower, where piped water cascaded down on bathers from overhead outlets, are attributed to the ancient Greeks during the 4th century BC (James & Thorpe, 1995). Showers during the Greco-Roman period were part of the architecture of public bathing (Webb & Suggit, 2000). Culture, economic forces, and technological innovation in plumbing have shaped and shifted showering into an ultimately private routine and an intensive form of domestic water consumption (Hand, Shove, & Southerton, 2003). Showering is not simply about cleansing, self-maintenance, or personal responsibility; it also represents factors such as relaxation, invigoration, and health (Hand et al., 2003).

People with disability, such as BI, frequently require services to increase showering independence, safety, and satisfaction. Showering is a self-care activity that can be pleasant, but it can be dangerous and difficult after disability and aging (Kimbell, 1999; Rader et al., 2006; Sloane et al., 2004). Although occupational therapists routinely appraise showering using self-care outcome scales to measure the client’s independence level for initial assessment, progress, and discharge, research and practice guidelines are limited (Fange & Iwarsson, 2003). Analysis of the average time spent showering, number of steps, and the number of products used may be
useful to further understand this habit, personalize services, and support client-centered practices.

People with BI frequently require supervision, assistive equipment, or home adaptations for safety and independence with showering. Although occupational therapists routinely perform functional shower evaluations and advise on the use of adaptive bathing equipment, the focus appears to be on independence rather than a complete understanding of this habit (Fernandes, 2007; Mann, Hurren, Tomita, & Charvat, 1996; Murphy, Nyquist, Strasburg, & Alexander, 2006). Some researchers have advocated time-delay cueing with people after BI for effective functional training in body washing (Giles, Ridley, & Frye, 1997; Giles & Shore, 1989). Other researchers have noted that occupational therapists tend to use more cues and instructions than other professionals (Booth, Davidson, Winstanley, & Waters, 2001). Despite the importance of showering as a predictor of disability, this habit remains unclear. More studies are needed to better understand this ultimately private habit.

The purpose of this study was to answer the following question: How do the showering habits of people with BI compare with those of people without brain injury (WBI)?

Method

Participants

Twenty people volunteered to participate in the shower study. The sample included 10 people who had sustained a BI and 10 typical adults. The two groups were matched with respect to gender. All participants were able to walk and stand in the shower independently. Participants in the BI group were recruited from a regional community-based center located in the southern United States. To be included in the BI group, people had to have sustained a head injury or a stroke. They had to be ≥18 years of age and have the cognitive capacity to answer interview questions as evidenced by the ability to follow multistep requests. People unable to provide consent because of either cognitive or language disorder were excluded from the study. The WBI group was recruited from the same geographic region and had to be ≥18 years old with no history of BI, documented periods of unconsciousness, or concussion. All participants were completely independent in showering. The appropriate subject review committees approved the research protocol, and informed consent was obtained from each participant.

Procedures

Taking a shower was defined as the act of washing oneself under water sprayed from a nozzle in the bathroom. Participants were asked to perform their personal shower routine in their own time, using their own steps and products. Participants wore bathing suits to provide modesty and privacy during the videotaping session. Before the shower routine, an occupational therapist interviewed each participant. The same therapist interviewed each participant. The interview was semistructured and ascertained the participants’ bathing preferences with respect to time, temperature, products, and sequences. All participants were queried with the same product list and were given an opportunity at the end of the interview to identify any additional items routinely used during bathing. An occupational therapist observed, timed, and documented each participant’s shower from videotape. Each participant’s steps, sequences, and products used were recorded on a scoring sheet.

Data Analysis

Shower data were examined descriptively using the mode to identify the order and frequency of steps used during showering. Each step was given a number. Steps that occurred in the same order for at least 50% of the BI or WBI participants were classified as a sequence. These steps were found to occur at different times during the showering routine but were consistent within each sequence. The four shower sequences were (1) water regulation–run sequence, (2) water run–hair wash sequence, (3) upper and lower trunk wash sequence, and (4) lower extremities and private areas wash sequence. Figure 1 depicts a comparison of shower sequences by group.

We collected and analyzed showering data to distinguish differences between the BI and WBI groups. Descriptive statistical analyses were performed using SPSS Version 15 for Windows statistical software (SPSS Inc., Chicago).

Results

Participants’ mean age was 37 years (standard deviation [SD] = 14.93). No significant difference was found in age between samples (t[18] = 1.278, p = .217). The total sample was 70% White, 5% African American, and 25% Hispanic. The WBI group had significantly more education (t[18] = 5.68, p < .001, mean difference = 4.4 years). Table 1 shows demographic information for the samples.

Shower time duration was longer for the BI group (median = 15.0 min, range = 4.0 to 41.0) than for the WBI group (median = 11.0 min, range = 4.0 to 20). The BI group used fewer steps (mean = 13.1, SD = 1.9) than the WBI group (mean = 14.3, SD = 1.25).

The most frequently used sequence was the water regulation–run sequence (n = 17). A higher percentage of the WBI group than of the BI group performed all four shower sequences. The WBI group used more steps because they rinsed more during each shower but nevertheless finished faster.
We examined time duration in relation to the number of steps, number of shower products used, and age of participants. The data indicated three significant relationships. There was a moderate significant relationship between the total amount of time used and age ($r = .46$, $p = .041$), indicating that older participants, regardless of group, took longer showers. We found significant correlations with the total number of products and number of steps used ($r = .64$, $p = .002$). We also found a significant correlation between the number of products used and education when controlling for group ($r = .47$, $p = .044$). The data suggest that those with more education are more likely to use additional cleaning products during bathing, necessitating additional steps.

The BI group used liquid soap more often than did the WBI group, whereas the WBI group was more likely to use bar soap than was the BI group. Shampoo and conditioner use was similar across groups, although the WBI group was more likely to use special hair care products. The manageability and simplicity of steps may have influenced the BI group’s use of fewer shower products. With respect to devices, 50% of the BI group used either grab bars or the wall for support during showering, whereas none of the WBI group used any support device. Figure 2 shows a comparison of bath products used across samples.

All participants stated that they showered daily; 2 participants stated that they showered twice per day, and 50% reported that they bathed at least once a month for relaxation. The most frequent reasons for showering were cleanliness and relaxation. The favorite temperature was hot water of medium temperature. There was no mention of water consumption issues.

### Table 1. Participant Demographics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Brain Injury (n = 10)</th>
<th>Without Brain Injury (n = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>Mean ± standard deviation</td>
<td>39.15 ± 14.82</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>19–74</td>
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<tr>
<td>Gender (n [%])</td>
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<tr>
<td></td>
<td>Female</td>
<td>4 (40)</td>
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<tr>
<td>Education (years)</td>
<td>Mean ± standard deviation</td>
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<tr>
<td></td>
<td>Range</td>
<td>12–16</td>
</tr>
<tr>
<td>Ethnicity (n [%])</td>
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<tr>
<td></td>
<td>African-American</td>
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<tr>
<td></td>
<td>Hispanic</td>
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<tr>
<td>Handedness (n [%])</td>
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<td>8 (80)</td>
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<tr>
<td></td>
<td>Left</td>
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<tr>
<td>Affected side (n [%])</td>
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<td>3 (30)</td>
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<td></td>
<td>Left</td>
<td>5 (50)</td>
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<tr>
<td></td>
<td>Bilateral</td>
<td>2 (20)</td>
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<tr>
<td>Type of injury (n [%])</td>
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<td></td>
<td>Aneurysm</td>
<td>1 (10)</td>
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<td>Tumor</td>
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<tr>
<td></td>
<td>Anoxia</td>
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<td>Severity (n [%])</td>
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<tr>
<td></td>
<td>Not applicable</td>
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<tr>
<td>Time since injury (n [%])</td>
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<td></td>
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<td></td>
<td>2 years</td>
<td>2 (20)</td>
</tr>
<tr>
<td></td>
<td>6 years</td>
<td>1 (10)</td>
</tr>
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</table>

Note. GCS = Glasgow Coma Scale (Teasdale & Jennett, 1974).

### Discussion

The shower experience is important to the quality of life of people with and without disabilities. Showering is a complex cultural habit. The BI group appeared to take longer showers with fewer steps and used fewer products than did the WBI group. This finding supports previous studies that have described the presence of motor alterations such as slowness that may have contributed to the longer duration.

Mild cognitive issues after BI such as memory impairment may have contributed to the skipping of body parts or steps. Some participants were noted to persever with certain body parts and skip others. Less product usage may have been attributed to caretaker directions.

In general, the results suggest that people with BI may have a different showering pattern. Showering duration, sequences, and product use can be used to detect subtle differences between people with and without BI. These
variables can improve understanding and personalization of showering habits.

**Limitations of the Study**

There were several limitations to the study. Showering observations can make the environment less natural. However, this environment was the natural institutional environment for the BI group. The lack of standardized showering procedure is another limitation, but a nonstandardized procedure was necessary and provided a more personalized environment and flexibility for showering performance. Despite our nonrandomized selected study sample, with its wide variation in age, we were able to explore and contribute to the understanding of showering habits among people with BI.

**Conclusion**

This brief research report provides a preliminary exploration of showering after BI. The results provide a useful insight into this cultural habit. The findings suggest that shower time, the number of steps, and the number of products used might be helpful to personalize functional assessment and intervention. showering deficits have been reported in people with BI, but further exploration and richer descriptions of showering habits are needed. Showering needs to be considered as a complex habit beyond cleanliness and independence.

**Acknowledgments**

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References


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